A Work Project, presented as part of the requirements for the Award of a Master Degree in Finance from the NOVA – School of Business and Economics.

Aurora Cannabis

"High" on valuation?

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Abstract:

The global legal cannabis market is divided into three segments (Recreational, Medical, and Industrial), and is expected to have a combined 25% CAGR and reach the $USD 100Bn valuation by 2025, driven by the consolidation of American and European markets.
Aurora is a major player and has been supporting its growth with acquisitions financed by equity issuances, putting some pressure on its financial performance.
Nevertheless, if legalizations follow the expected pace, and if Aurora manages to build solid partnerships in markets where it has lower influence (e.g. US), the quality of its products and production facilities lead to a bullish view on its performance.

Keywords:

Aurora Cannabis; Medical Cannabis; Recreational Cannabis; Industrial Hemp

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AURORA CANNABIS

COMPANY REPORT

HEALTHCARE

4 JANUARY 2020

Summary

- The global legal cannabis market is divided into three major segments (recreational and medical marijuana, and industrial hemp) and is expected to have a combined 25% CAGR (further details in the report) over the next years and reach the $USD 100Bn valuation by 2025, mostly driven by the consolidation of American and European recreational markets.

- Aurora Cannabis is a top-three player in the industry, being the largest producer in the world. This position is the result of an intensive M&A strategy (over USD$ 3Bn in the last two years), allowing the firm to be present in all geographies with solid contracts in countries with strict regulations (e.g. Aurora is one of the only firms to have licenses to produce and sell in Europe). This might reveal itself as important since the industry is expected to consolidate into the largest players over the next years due to high regulatory impositions on production and distribution (similar to the tobacco industry).

- Main risks relate to the fact that in a fast-growing industry with no cash flow generation and where constant investments are required, the lack of a financial or strategic partner (main competitors already have) and the low access to debt markets force the firm to finance its growth with equity issuances. This represents bad signaling for investors, who do not like recurrent issuances due to the dilution it causes.

- This causes pressure for the company to start presenting positive results (EBITDA expected to be positive until 2024), and the need for an urgent strategy to capture market share in the US (the world's biggest market), in line with what competitors have been doing. Also, the pace of legalizations in Europe will be important for the company, since it is a market where the company is targeting a strong strategic position.

Recommendation:	**BUY**
Price Target Mar-21:	**CAD 6.75$**
Price (as of 3-Jan-20)	**CAD 2.79$**

Source: Bloomberg

52-week range ($ CAD)	2.82-13.67
Market Cap ($Bn CAD)	4.205
Outstanding Shares (Bn)	1.015

Source: Bloomberg

Aurora Vs S&P 2019, In $CAD, Source: Bloomberg

(Values in $M CAD)	2018	2019E	2020F
Revenues	55.2	281.1	669.2
EBITDA	(90.3)	(253.2)	(413.1)
Net Profit	(57.9)	(337.1)	(647.2)
Unlevered Cash Flow	(1,483)	(3,402)	(2,277)
EPS	(0.16)	(0.29)	(0.51)
P/E	n/a	n/a	n/a

Source: Annual Report

Company Description

Aurora Cannabis was founded in Canada in 2011 and is a leading player in the industry, present in the Medical, Recreational and Industrial Segments

Contents

The Cannabis Sector

Overview

The sector can be split into three main segments (Recreational, Medical and Industrial), each of these with its specific characteristics, clients, channels, or even products.

"The Sector can be split into three main segments: Recreational, Medical and Industrial"

The recreational segment has always existed and is benefiting from a recent wave of legalizations among countries. The medical sector (where Aurora started to position itself) has been under the radar in recent years, due to main research and case studies that have been revealing good results for the treatment of diseases (such as Parkinson, Multiple Sclerosis, Spinal Cord Disease, Arthritis, Epilepsy, Insomnia, among others) with the use of cannabis. The industrial sector uses hemp[1] and is focused on producing different cannabis-derivative products (e.g. rope, textiles, clothing, food, paper, bioplastics, insulation, biofuel, among others).

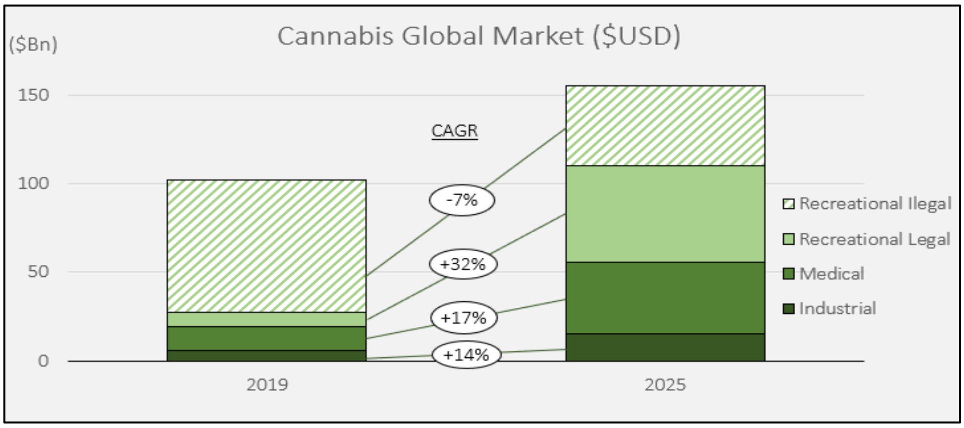


Figure 1: Global Cannabis Market 2019-2025; Sources:Aphria Annual Report; Prohibition Partners; Global Cannabis Report; New Frontier Data; Euromonitor; UN ODC

"Cannabis Global Market was over $USD 100Bn in 2018. This value comes almost in its entire amount from the illegal recreational market"

As shown in *Figure 1*, the cannabis global market was over $USD 100Bn in 2018. This value comes almost in its entire amount from the illegal recreational market that exists, and is perfectly consolidated, in the majority of countries running in parallel economy. With the surge in legalizations for recreational use, the increase in medical uses[2], and the rise in industrial hemp products due to its lower price, the size of the overall market (both legal plus illegal[3]) is expected to surpass the

[1] Derivation of the cannabis plant which is different from marijuana
[2] Several products were already approved by the state organizations and are already part of the national health systems subsidized by the state (e.g. in Portugal "Sativex" was the first product to be subsidized by the health system), and doctors are allowed to prescribe the drug. These products will compete directly with already-existent drugs specifically for Parkinson and Multiple Sclerosis.
[3] The illegal market was measured by aggregating data from the reports mentioned as well as opinions from an "opposite" interest lobby in order to have a more robust sizing.

$USD 150Bn by 2025 (5% CAGR), where the major driver is the conversion of the illegal recreational segment into legal.

"In the US the average consumer in the recreational segment is thirty-seven years old and married with children"

In terms of the supply chain, the recreational market is more fragmented, having several small players especially because no major firm wanted to bear the reputational risk of entering the market and failing. Major markets[4] are mostly in North America (approximately 1/3 of the total global market) and Europe, with variations depending on each sector (*Figure 2)*.

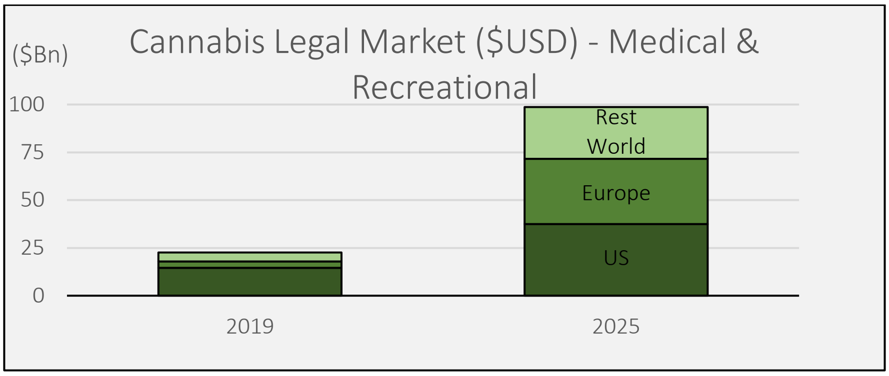


Figure 2: Cannabis Legal Market ($USD) - Medical & Recreational; Source: Euromonitor

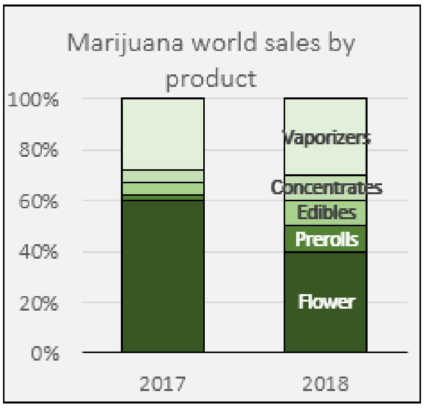


Figure 3: Sales by product; Source: Deloitte "Cannabis 2.0" Report

Products available already show a comprehensive variety of options *(Figure 3)*. In the industrial segment, hemp products will be used for industrial purposes (e.g. textiles, clothing, paper, among others). When it comes to marijuana products, both medical and recreational products can exist in similar forms, except for tablet pills made with cannabis (which represent less than 1% of the market). The remaining products are the dried flower and prerolls (more than 50% of the offer), the vaporizers (have been gaining share over the years because they are seen as less harmful and already represent around 30% of the offer), and the so-called Cannabis 2.0 products (representing the new wave of products in form of edibles such as chocolates or cookies that already represent around 15% of the market and are expected to grow over the next years).

"Can the same weed be legal and considered medical when prescribed by a doctor, and at the same time be illegal when someone buys it on the streets to have fun with friends?"

In terms of production and product characteristics, there are no relevant differences between different companies, and therefore the brand value and its selling power are crucial for the success of the companies. Nevertheless, it is important to understand the differences between cultivation, transformation, and distribution, and whether the companies position themselves in each of them, or if they integrate the three of them (which is the most common with both Aurora and its main competitors).

[4] Source: Euromonitor

"Choice of locations is more dependent on strategic decisions such as proximity to the distribution network or legal barriers on importation, rather than on natural barriers"

When referring to the production conditions, although cannabis is a plant that tends to generate better output when produced among the tropics, it is good in adapting to other conditions and has also shown good results in indoor farming. Therefore, the choice of locations is more dependent on strategic decisions such as proximity to the distribution network or legal barriers on importation, rather than on natural barriers.

The difficulty of making the distinction between recreational and medical cannabis has been increasing over the years, especially because research has been finding the major benefits of medical cannabis coming from the THC[5] (the same psychedelic component in the plant used by recreational users to get the "high" sensation). "Can the same weed be legal and considered medical when prescribed by a doctor, and at the same time be illegal when someone buys it on the streets to have fun with friends?". This and other non-coherent questions have been raised by a growing number of supporters and are the major reason why the majority of industry experts[6] contacted believe the medical legalization will be followed by the liberalization of the consumption for adult use.

"THC is the psychoactive compound, that creates the "high" sensation. CBD has no psychoactive effects and is mostly used to relax the body"

However, in the long term, with the consolidation of the market, this distinction is expected to get clearer. While the industrial sector will be mostly represented by textiles, clothing, paper and cosmetics, the recreational segment is expected to be represented by dried flowers as well as several edible products. The medical segment is likely to share some similar products with the recreational, but with a stronger representation of cannabis-derived products such as oils, gels, or tablet pills. The recreational products are expected to have a higher composition of THC when compared with CBD[7], while the medical products will have lower THC amounts.

- CBD Vs THC

Cannabidiol (CBD) and tetrahydrocannabinol (THC) are the two main chemical components found in cannabis plants.

THC is the psychoactive compound, that creates the "high" sensation. CBD has no psychoactive effects and is mostly used to relax the body. The two compounds interact with the endocannabinoid system, but they have very different effects.

[5] Tetrahydrocannabinol: a chemical component in the marijuana plant
[6] For this report several interviews were conducted, and experts in the industry were contacted e.g. responsible lawyer for the Portuguese branch of one of the largest multinationals, the owner of one of the shops were hemp is being sold, Aurora C-levels, several industry-related people (e.g. producers, supporters, researchers, among others) during the Cannadouro International Conferences that took place in Porto during November 2019
[7] Cannabidiol: a chemical component in a cannabis plant

Both can be used as recreational and medical[8], but usually the recreational use tends to have higher percentages of THC (15%-20%).

Depending on the seed, Sativa or Indica, the plant can have more CBD or more THC correspondently. Marijuana (Indica) has a higher concentration of THC while hemp (Sativa) has a higher concentration of CBD. Industrial Hemp has low amounts of THC (<0.3%) and CBD (<3%) and this is why it usually has distinct end-uses. Nevertheless, is not uncommon to hear about hemp-derived CBD products.

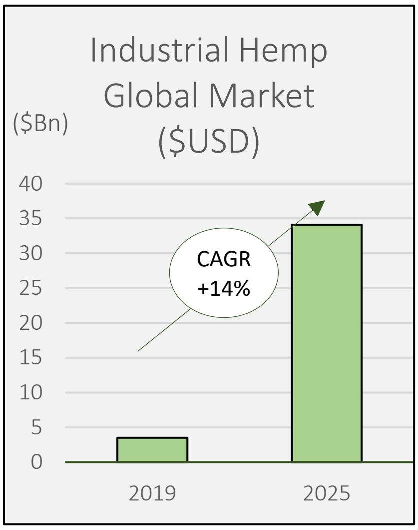


Figure 4: Industrial Hemp Global Market 2019-2025; Sources: Global Cannabis Report; New Frontier Data; Euromonitor

Market Segmentation

There are three main cannabis segments (Industrial, Recreational, and Medical), depending on the types of products and the level of CBD and THC.

- ### Industrial Hemp Segment

Especially big in the US, where it is common to hear about hemp paper or hemp clothes, the industrial cannabis sector has been using this derivation of the cannabis plant for more than 10.000 years.

Due to its fast-growing characteristics[9] and low production costs, the plant has been used to produce fibers that then are used to produce commercial products such as clothing, paper, textiles, biodegradable plastics, paint, insulation, biofuel, food, and animal feed.

The industrial cannabis market (*Figure 4*) is expected to grow at a 14% rate until 2025, to reach a $USD 15Bn market value. This growth is expected to be mostly driven by seed production, included in the composition of personal care products (e.g. cosmetics), food and beverages.

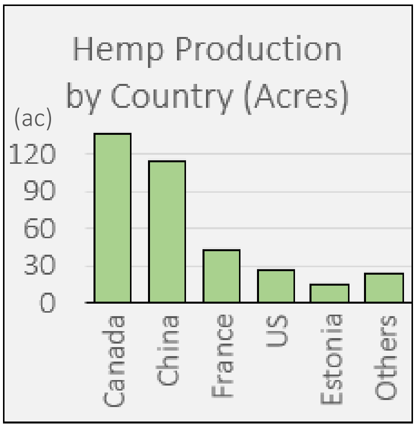


Figure 5: Hemp production by country in 2017; Sources: Global Cannabis Report; New Frontier Data; Euromonitor

Major players are mostly industrial companies that have been in the sector for a long time. Regarding geographical areas, Canada, China, France, USA, and Estonia (*Figure 5*), appear in the frontline with the largest hemp productions.

Canada appears first, mostly due to the use of hemp-derived CBD to produce medical supplements[10] such as oils and gels. However, hemp production to extract the fibers that are used for industrial purpuses (as paper, textiles, among others)

[8] The 10%-10% THC-CBD composition has been found to be the most effective for medical treatments. Source: German Institute for Medical Cannabis
[9] A hemp plant takes between two to four months until its fibers are ready for harvest
[10] Medical supplements are produced with hemp-derived CBD (due to the lower production costs), but are not recognized as an official medical drug and its effects are not totally verified

is mostly located in China[11], where cultivation is closer to the transformation sites, and final products are then exported all over the world.

In terms of products, if the company positions itself only in the cultivation of hemp, then there are no relevant differences in the product in its raw form. However, if the company also does the transformation of the fibers, then it is important to have enough scale to compete for sales contracts with larger firms in the industries of textiles, paper, among others. For instance, firms like Aurora are not players in the industrial segment, and only some of them have small cultivations of hemp, or even excess stock of marijuana that then is sold for industrial purposes.

"Research in the field, that has been showing cannabis as a less harmful drug when compared with others such as alcohol or tobacco"

- Recreational Segment

Despite the evidence of cannabis use dating back to centuries ago, recreational use suffered a major backlash during the 20th century, being banned and considered as a hard drug all over the globe. Nevertheless, the 21st century new wave of liberal ideals aligned with recent findings of its health benefits have been bringing the topic back to international discussion and a recent wave of legalization of recreational use has been emerging.

This recent wave of legalization has been associated with the increase of research in the field, that has been showing cannabis as a less harmful drug when compared with others such as alcohol or tobacco[12]. Besides that, all recent evidence is showing that the drug has also a low dependency rate (<10%), which comes against the common generalized idea of cannabis causing addictiveness and deaths.

"While in the medical sector the regulatory restrictions create strict barriers to enter the market, the recreational segment is expected to be more fragmented, similar to what happens with craft beer in the beverages sector"

The Netherlands took the lead in regulating the legal use of cannabis for recreational purposes, using the well-known "coffee shops[13]". However, the first country to officially legalize the production, trade, and use of cannabis for recreational use, was Uruguay in 2015 followed by Canada in 2018. The USA came next and several states have been legalizing the use of the plant (currently 33 for medical uses and 11 for recreational purposes), and until 2025 it is expected to get closer to the 30-state threshold[14] where it automatically needs to be discussed at a federal level. Spain recently introduced a similar approach as the Netherlands and appears as the first in line for full legalization which is expected

[11] Similar to other industrial sectors, China offers cheaper and qualified labor force, larger production facilities, and a robust legal framework for production
[12] Source: Batista Leite, Ricardo. Ploeg, Lisa. "The Road towards the Responsible and Safe Legalization of Cannabis Use in Portugal", February 2018, Ata Médica Portuguesa
[13] Closed spaces where trade and consumption are allowed
[14] In the US after 30 states pass a similar law, it goes directly for approval at a federal level

to happen until 2022. Nevertheless, Spain is not alone, and until 2025[15] other countries such as Portugal, South Africa, Italy, Switzerland, Mexico, Columbia, are also expected to legalize the recreational use, to fight the already existent parallel economy, and create a strict regulatory framework over the product, closer to what can be found in alcohol or coffee markets.

Larger cannabis companies (e.g. Canopy Growth, Chronos, Aphria, Tylray, Aurora, among others), which started their activity with the production for the medical sector, have been taking advantage of the wave of legalizations to adjust their focus, especially considering the size of the recreational segment (*Figure 6*). Nevertheless, while in the medical sector the regulatory restrictions create strict barriers to enter the market, the recreational segment is expected to be more fragmented, similar to what happens with craft beer in the beverages sector.

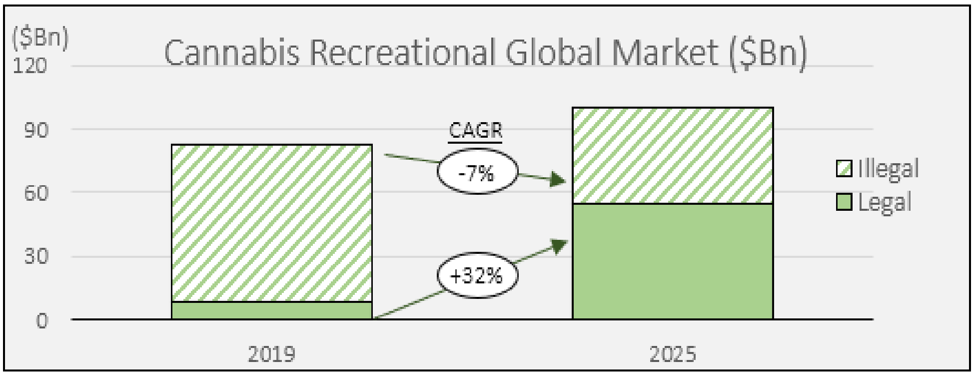


Figure 6: Cannabis Recreational Global Market; Sources:Aphria Annual Report; Prohibition Partners; Global Cannabis Report; New Frontier Data; Euromonitor; UN ODC

"Despite being in parallel economy, it is a market already mature in the majority of countries that are about to legalize, where there is a relatively easy access to "weed", with consistent supply and high acceptance rates by the population"

Despite being in parallel economy, it is a market already mature in the majority of countries that are about to legalize, where there is relatively easy access to "weed", with consistent supply and high acceptance rates by the population[16], and where the average consumer is no longer associated with delinquency[17].

For these reasons, as shown in *Figure 6*, the recreational market is not expected to expand immensely in terms of size. The trend will be mostly a shift from the illegal trade (>90% of the total recreational market in 2015) into a regulated market by 2025 (when the illegal market is expected to represent <40% of the total recreational market).

[15] The vision is shared by largest political lobby groups, doctors, and lawyers of those countries, and is in line with the evolution of the regulatory frameworks verified over the last quarters
[16] In 2018, 61% of Americans thought "weed" should be legalized for adult-use; Source: Pew Research Center
[17] In the US the average consumer in the recreational segment is thirty-seven years old and married with children; Source: Euromonitor

In terms of production, most companies opt to have different production sites, both for cost reduction and to be closer to the distribution networks. This is possible because cannabis in its dried form can travel across countries without losing its characteristics, and therefore companies like Aurora have several production facilities in countries with similar weather conditions (particularly in the tropics and equatorial regions such as Columbia, Portugal, Morocco, Mexico, among others) as well as lower labor and real estate costs. Also, due to strict legislation, some countries[18] require that production cannot be imported, and if firms want to sell in those countries, they need to have physical facilities there.

“Rise of vape instruments is expected since the reduced amount of inhaled smoke has been perceived as less harmful for the body”

In terms of products, raw weed and prerolls are expected to continue to be the major way of consumption (>50%), while a rise of vape instruments is expected since the reduced amount of inhaled smoke has been perceived as less harmful for the body. Also, the practicality of not needing to carry all the material to roll a joint[19] is an important factor that contributes to the acceptance of this all-in-one solution.

Other products that are expected to have an impact in the industry, and also in the recreational segment, are the products responsible for the so-called “Cannabis 2.0”, referring to the new wave of cannabis-derivative products, made out of cannabis extracts, such as cookies, beverages, tea, among others. Due to the lack of legislation, these products have been produced using hemp[20] but the shift into higher THC-level products is expected to happen as soon as the legislation moves forward.

“In Europe (and similar to what is happening in the US), the models under discussion would be similar to the alcohol market in the Nordics, where there are specific stores with the license to sell alcohol and supermarkets are only allowed to have beverages until a certain alcoholic level (or even alcohol-free).”

The products across different companies do not vary immensely, and although some companies focus on specific products (e.g. only producing gels or oils), in the recreational segment the type of product[21] weights more in the purchase decision of a consumer rather than the brand. And that is one of the major reasons for the importance of the distribution channels, and a good distribution network as well as strong relationships with the authorities in each country.

This happens because in terms of distribution channels each country still has a unique legislation regarding the topic as well as different distribution models. For example, while in Canada people are allowed to buy online from companies' websites, in Uruguay they need to be registered in an official list of consumers and

[18] This is more common in the medical sector where countries like Italy do not allow imports from outside, but similar restrictions are expected to be seen in the recreational sector and companies will need to face those barriers
[19] Materials might include papers, filters, tobacco, weed, grinder, amongst others
[20] E.g. Cannabis Store Amsterdam has over 170 stores in Southern Europe and is using hemp to produce several products (e.g. edibles, raw weed, drinks, chocolates, among others)
[21] The consumer cares about the type of strain or quality they are buying more than the brand that was responsible for the production, creating space for smaller businesses to focus on niche products

the product can only be found in pharmacies or other specific stores ruled by the government. In Europe (and similar to what is happening in the US), the models under discussion are similar to the alcohol market in the Nordics, where there are specific stores with the license to sell alcohol and supermarkets are only allowed to have beverages until a certain alcoholic level (or even alcohol-free).

"Both CBD and THC can have good medical benefits. THC has been associated with the highest benefits. However, CBD does not cause the psychedelic effect and usual cancels out the effects of THC"

- Medical Segment

Despite stories dated from 3000BC mentioning that the cannabis plant was used in Chinese treatments, it was not before this last decade that the industry really experienced an explosive growth. Cannabis used for medical purposes has been receiving a good acceptance (especially in America and Europe) in recent years, due to positive feedback and the effectiveness of treatments using cannabis[22].

Both CBD and THC can have good medical benefits, although THC has been associated with the highest results. Nevertheless, CBD does not cause the psychedelic effect and commonly cancels out the effects of THC, and therefore is usually also part of the product.

"Pure medical cannabis companies (i.e. Pharma) are still on the rise, but GW Pharmaceuticals (market cap $USD 40Bn) is leading the race and has developed several products for multiple Sclerosis diseases"

The medical cannabis market is expected to be given more attention in the next years due to the increase in its use in treatments. Started in Canada, and followed by the United States, the trend is shifting to Europe where countries such as Germany, Spain, Portugal, Switzerland, among others, have been implementing cannabis-drug solutions[23] into their range of options for treatments of Sclerosis, Parkinson, Diabetes, among others.

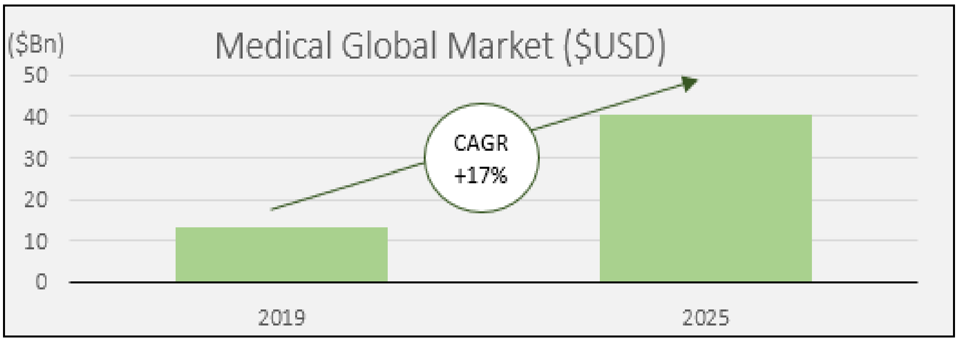


Figure 7: Medical Global Market; Sources: Aphria Annual Report; Prohibition Partners; Global Cannabis Report; New Frontier Data; Euromonitor; UN ODC

As shown in *Figure 7* the global market is expected to present an annual growth of around 17% over the next years to reach a $USD 40Bn valuation by 2025. USA ($USD 10Bn), Canada ($USD 5Bn), Germany ($5bn), and smaller markets such

[22] Source: German Institute for Medical Cannabis
[23] Several drugs have been approved by national health agencies and are already part of the spectrum of options for the doctors to prescribe

as Spain, Netherlands, Italy, South Africa, Israel, Switzerland, Mexico (with around $1bn market potential), are expected to be the countries leading the growth.

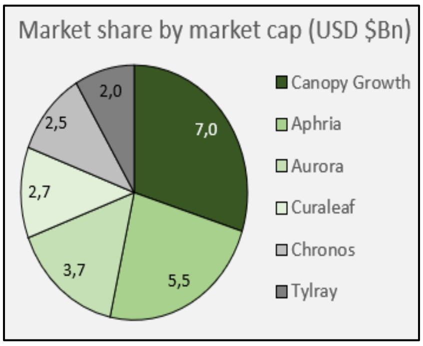


Figure 8: Cannabis Players by Market Cap November 2019; Source: Bloomberg

In terms of players (*Figure 8*), the most-known companies in the sector include Canopy Growth (market cap $USD 7Bn), Aphria (market cap $USD 5.5Bn), Aurora (market cap $USD 3.7Bn), Curaleaf (market cap $USD 2.7Bn), Chronos (market cap $USD 2.5Bn) and Tylray (market cap $USD 2Bn). Although these companies classify themselves as medical, they are mostly responsible for the cultivation of the plant itself. Therefore, their products are usually either the dried flower itself or lower technology-intensive products such as oils, gels or drops. Pure medical cannabis companies (i.e. Pharma) are still on the rise, but GW Pharmaceuticals (market cap $USD 40Bn) is leading the race and has developed several products for multiple Sclerosis disease[24].

"Medical cannabis is no more than a pharmaceutical sector, involving high costs in R&D, and requiring major working capital investments in inventory, regulations, expansion, among others"

Nevertheless, medical cannabis has been the solution found to start the talks for the legalization of sales of weed in its dried flower state (that will be used to smoke). This happens because if someone smokes cannabis to feel better both psychologically (happier, relieved) and physically (to help them to relax after a workday), then cannabis will start to compete directly with pain killers or anti-depressives even before being used for more degenerative diseases such as Parkinson or Multiple Sclerosis.

"Brand image assumes more relevance than in other segments since doctors need to trust the companies in order to prescribe the drugs. Some of the transformed products are protected by patents and that is the reason why R&D is important in this segment"

In terms of competition, it can vary considerably among the different industry segments. Industrial cannabis represents a "heavy" industry[25] and therefore, has generated economies of scale in mass production, allowing for some concentration in suppliers[26]. The recreational segment seems to be a more competitive market served by several players, some of them regional[27]. Finally, medical cannabis is no more than a pharmaceutical sector, involving high costs in R&D, and requiring major working capital investments in inventory, regulations, expansion, among others. Therefore, the production is capital-intensive, requiring relevant capex investments[28]. Due to these high barriers to entry (and exit), it seems that this last segment is the natural oligopoly that after some years of intense M&A activity and integrations, will end up with few big players that will compete against each other to guarantee the highest market share.

[24] E.g. Sativex (with both THC and CBD) was already approved and can be found in several European pharmacies
[25] The industry requires intense Capex with production and transformation machines creating high barriers to entry and creating economies of scale with an increase in production.
[26] There is a strong concentration in production companies, mostly with origins from China or Canada
[27] Once adult-use is legalized, part of the recreational segment is expected to be targeted by smaller players with specific or tailored products (similar to what was verified with craft beer in the beverages segment).
[28] Investments required are analyzed in more detail over the next sections of the report

In terms of products, for companies like Aurora, oil and gel are the ones growing the most, especially because older people feel more comfortable to take it. The ingestion can be done with drops or by putting it into a vaping instrument. Also, some common tablets have been emerging and are already present in some European pharmacies.

With medical cannabis, there is some differentiation in products across different companies, especially because the majority of products suffered transformations (e.g. pills, sprays, gels, oils) and are not just cannabis in its dried form. Also, the brand image assumes more relevance than in other segments since doctors need to trust the companies in order to prescribe the drugs. Some of the transformed products are protected by patents and that is the reason why R&D is important[29] in this segment. Nevertheless, lower added-value products such as gels or even cannabis in its dried form have been given medical properties in several countries (such as Germany or Portugal), allowing companies like Aurora to be present in the market without major investments in R&D.

"Cost per gram of dry flower of around USD 2$ in Canada, can be decreased to close to USD $0.50 in Columbia"

Like recreational cannabis, plantations and production facilities have been moved to countries such as Columbia, Mexico, Portugal, among others, due to its cheap labor force and good weather conditions, making them ideal places[30] for the cannabis development.

Due to the tendency for market concentration in terms of suppliers, it is expected for major firms to have large production facilities in the mentioned countries, as well as having comprehensive distribution networks that take the product to the consumer. Nevertheless, medical cannabis has strict regulations and audits during the production process, and the distribution model will depend severely on the legislation within the country, representing a major issue these companies will need to overcome[31]. While in Canada, Aurora is allowed to have an online distribution service to customers that are enrolled in a subscription list (after an appointment with a doctor), European countries are expected to follow the Uruguay example, where the drugs will be mostly distributed in pharmacies.

[29] GW Pharmaceuticals have been the pioneer in clinical trials with several transformed medical drugs, while companies like Aurora have mostly focused on lower value added products like gels or cannabis in its dried form that are expected to be given similar medical properties, allowing for the company to compete in the segment with a lower R&D expense. Source: German Institute for Medical Cannabis

[30] The cost per gram of dry flower of around USD 2$ in Canada can be decreased to close to USD $0.50 in Columbia; Source: Financial Times

[31] For example, Aurora was one of the three companies which were allowed the supply of cannabis in Germany without the need for production facilities in the country, which represents a major entry barrier for other companies and will allow Aurora to leverage this in the European market

Company overview

Company description

Aurora Cannabis Inc. is a leading integrated cannabis company headquartered in Edmonton, Canada, engaged in the production, distribution, and sale of cannabis products. Currently, Aurora operates in three different segments: Medical Cannabis, Recreational Cannabis and Industrial Cannabis.

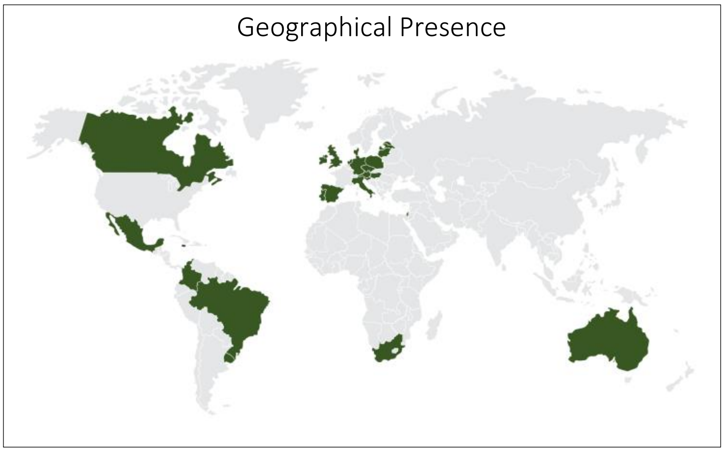
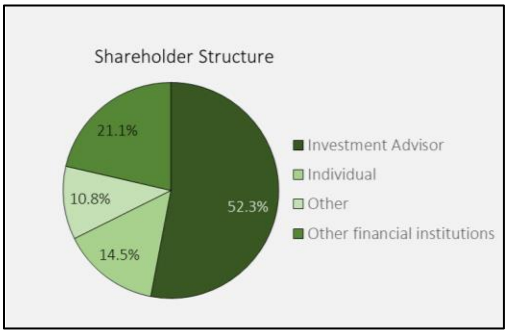


Figure 9: Aurora Geographical Presence; Source: Aurora Annual Report

"Nowadays, more than 50% of the company is held by institutional advisors, such as Vanguard, BlackRock, ETF Managers groups, among others"

Additionally, Aurora operates in 25 countries (*Figure 9*), and has undertaken 17 strategic acquisitions and partnerships across the value chain since 2016.

- Shareholder and Management Structure



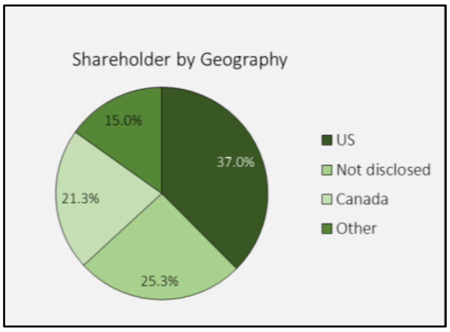


Figure 10: Shareholder Structure; Source: Bloomberg

Until 2017, the shareholder structure was mainly composed of individuals and the founders (Steve Dobler and Terry Booth), who were among the largest shareholders. Nonetheless, since 2017 as the firm expanded and the industry sparked the interest of many investors, institutional investors started to invest in the company. Nowadays, more than 50% of the company is held by institutional advisors, such as Vanguard, BlackRock, ETF Managers groups, among others.

In what regards the individual ownership, the president of Aurora, Steve Dobler, is the current largest individual shareholder of the firm, followed by the CEO, Terry Booth, detaining around 2% and 1% respectively[32].

"Given cannabis is not legal at a federal level in the US, Aurora is still only listed over the counter (OTC) and not in the exchange. Likewise, a downside of being listed in OTC is that large Investors who would want to invest in the company, are not allowed to due to portfolio policy restrictions"

Nonetheless, given cannabis is not legal at a federal level in the US, Aurora is still only listed over the counter (OTC) and not in the exchange[33]. Likewise, a downside of being listed in OTC is that large Investors who would want to invest in the company, are not allowed to due to portfolio policy restrictions[34]. The same happens in Europe as it is not legalized in most countries, which also limits the access to European investors.

History and past acquisitions

Although the company's first license to sell medical cannabis was only given in 2014, the firm was established in 2006, and since then, Aurora has been building and operating numerous facilities not only in Canada but also in Europe[35].

Aurora undertook multiple acquisitions for the past years, and today, the firm's portfolio includes names such as CanniMed and MedReleaf, two large cannabis producers.

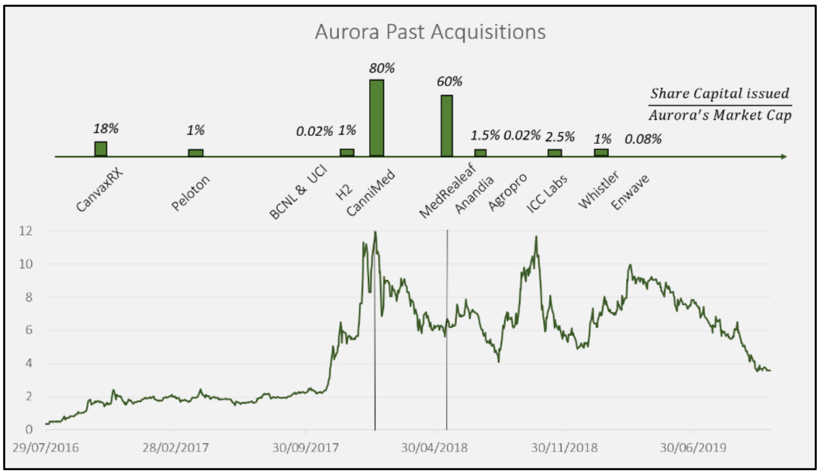


Figure 11: Company Acquisitions and Stock price performance ($CAD); Source: Aurora annual report

For instance, back in 2016, the CanvasRx acquisition gave access to one of the largest databases on cannabis strains and physicians, creating synergies in reaching out to the medical community. In 2017, among the numerous acquisitions

32 Source: Bloomberg
33 OTC is a decentralized market whereby security is traded via a broker-dealer-network. Centralized exchange is an organized and regulated market where securities are traded through a centralized source facilitating a safer and easier transaction.
34 Illiquidity could be a restriction. For instance, if a shareholder decides to sell a large share of his capital, there might not be the number of buyers willing to buy it and likewise the bid-ask spread can be too large.
35 Company holds 15 production facilities- 4 in Europe, 10 in Canada and 1 in Uruguay; Source: Aurora annual report

was Pedanios Pharmaceuticals, Germany's largest distributor of cannabis to pharmacies, which represented a key step to enter the medical cannabis in the European market. More recently, the company acquired Whistler, a Canadian cannabis iconic brand known for providing premium quality cannabis. Nonetheless, by looking at the figure above, those are considered relatively small acquisitions as the capital raised for most deals represents around 1% of Aurora market cap and did not have a large impact on the firm share price.

"Aurora acquired CanniMed for $CAD 1.2Bn (…), the market reacted negatively, dropping two consecutive days by a total of around 15% based on the previous day closing price"

On the other hand, on 24th January 2018, Aurora acquired CanniMed for $CAD 1.2Bn. Although their reputation and capabilities were significantly strong in the medical market and could further leverage the growth and penetration of one of the main segments of the international cannabis market, the market reacted negatively, dropping two consecutive days by a total of around 15% based on the previous day closing price of CanniMed[36].

On 14th May 2018, MedReleaf's acquisition was marked as the largest cannabis takeover in the industry after Aurora acquired its rival producer for $USD 2.6Bn. The firm paid $CAD 29.4 per MedReleaf common share, corresponding to a premium of 20% which the market might have interpreted as an expensive deal since the Aurora stock dropped the next three days by a total of 14%[37]. In terms of synergies however, the company was able to produce on a larger scale in Canada, and to be present in other provinces, securing a leading position as a top-tier licensed producer in cannabis.

"On 14th May 2018, MedReleaf's acquisition was marked as the largest cannabis takeover in the industry"

In fact, when looking at the chart performance of the firm, the premium over these mergers would not fully explain the drop in price. Likewise, the issuance and selling of shares to finance these acquisitions is another relevant factor that affected the stock price because older shareholders reacted negatively to the dilution caused by new issuances.

When looking at competitors' M&A activity, similar patterns can be observed. Most of the large deals were financed through equity and companies look to merge both at a vertical and horizontal level. For example, Canopy Growth emphasized its focus on driving product innovation by increasing research and better margin products having likewise acquired companies such as BioSteel Sports Nutrition and Beckley Canopy Therapeutics[38]. Curaleaf is focused on the US market and acquired companies such as Grassroot and Cura Partners, both vertically integrated companies and state-regulated cannabis businesses.

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[36] Source: PR Newswire "Aurora Completes CanniMed Acquisition", May 2018, reported by Aurora
[37] Source: PR Newswire "Aurora Cannabis to Acquire MedReleaf", May 2019, reported by Aurora
[38] Source: Canopy Management Discussion and earnings report 2019

Revenue Model

As mentioned before, the firm operates in three distinct segments: Medical, Consumer and Industrial Cannabis. Majority of sales still come from Canadian market (over 90%), while the remaining are mostly driven by European market, the one expected to represent the major driver Aurora´s growth in the next years,

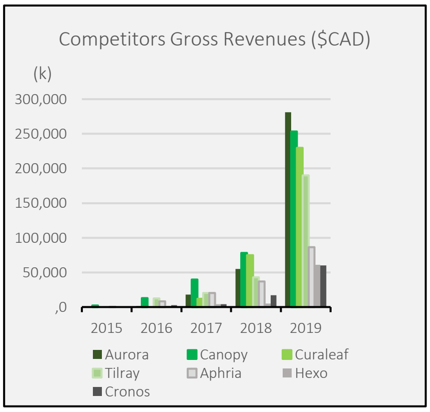

Figure 12: Industry revenue company breakdown ($CAD); Sources: Company respective annual report

The firm currently has three main different product lines: dried cannabis, cannabis extracts and others (e.g. vapers). Dried cannabis is the most recognized form of the substance for all cannabis consumers. Cannabis extracts is a more recent line of business, which includes oils, gels, and other cannabis-derived products. Finally, “others” represent vapers and other products related to the consumption of the substance. Likewise, they can all be used for both medical and recreational pure depending on the dosages of THC and CBD.

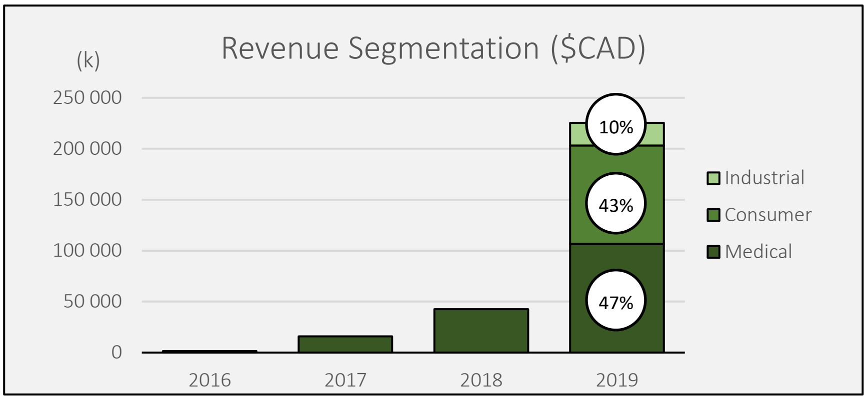

Figure 13: Aurora revenue breakdown; Source: Aurora annual report

“Cannabis extracts is a more recent line of business, which includes oils, gels and other cannabis-derived products”

Before the legalization in Canada, Aurora ‘s main source of revenue was solely the medical business[39]. Only in October 2018, the Federal Cannabis Act[40] was settled, formalizing the legalization of cannabis in the North American country. Subsequently, the recreational cannabis revenues boosted across the industry and in 2019, the segment represented around 43% of Aurora’s total revenues.

While industrial segment is not the company focus, on the other hand, the medical business, which represents nearly half of the total revenues, is expected to increase over the next years (in particular in the European market).

For example, In Europe, the company currently sells in Germany, Malta, Poland[41] and, more recently, in Italy. In September 2019, the company signed a contract

[39] Until 2017, the firm only sold dried cannabis. By 2017, the company started selling dried cannabis to the EU and cannabis extracts in Canada within the medical sector
[40] Health Canada is the organization responsible for overseeing national health and regulates the cannabis sector.
[41] Through its subsidiary Aurora Deutschland GmbH, it ships products to pain treatment centers and hospitals.

deal whereby Aurora will be one of the main suppliers of the Italian government regarding medical supply for the next two years[42].

"Company signed a contract deal whereby Aurora will be one of the main suppliers of the Italian government regarding medical supply for the next two years"

Nonetheless, Aurora's competitors are also investing in the European market. For instance, Canopy Growth is currently producing cannabis for medical and cosmetic purposes in Czech Republic and has established itself in Denmark which might be one of the largest production sites in Europe[43]. Moreover, Canopy reported early this year that they formed a partnership with a Spanish morphine producer called Alcaliber which signals the interest of the Canadian company to tackle the European market. Additionally, Tilray holds more than 20 hectares of indoor and outdoor cultivation in Portugal as well as facilities for manufacturing, processing, and research. Finally, Aphria continues to expand its footprint in Europe through strategic partnerships such as ASG[44].

- Cost structure

The company strategy of incurring heavy M&A activities has been successful in helping to decrease the cost per gram of dried cannabis sold given they have been realizing more economies of scale[45] by producing larger volumes through their facilities such as Aurora Sky, River and Ridge. In addition, the lower conversion cost[46] due to the technology development has also proven to be key in lowering the production cost per gram. Although decreasing for the past quarters, the costs per gram are expected to stabilize once M&A and respective synergies are fully established and production facilities reach their maximum production capacity and hence all economies of scale are realized.

[42] According to the annual report, Aurora is expected to supply a minimum of 400kg of medical cannabis over a two-year contract. The fact that its German subsidiary Pedanois has a GMP certification was critical to win the tender offer
[43] European Cannabis Report by Prohibition Partners
[44] High capacity EU-GMP certified lab in Malta
[45] Source: Aurora annual report
[46] Cost of converting the dried cannabis into an oil form.

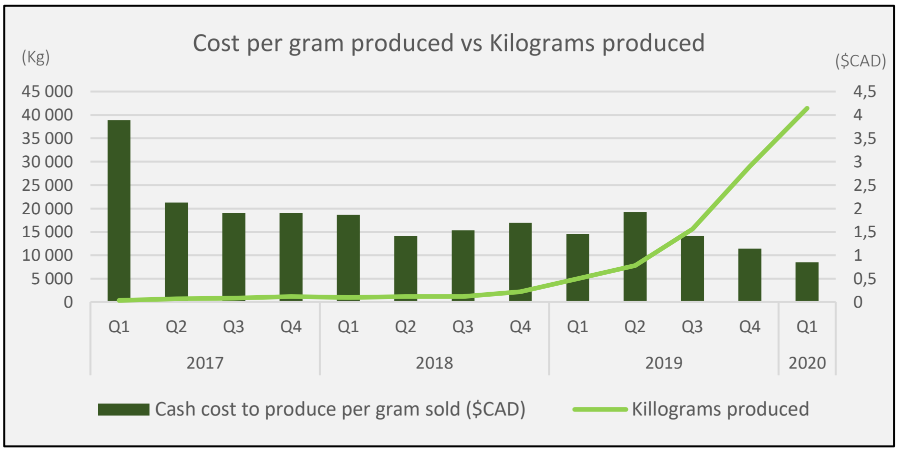

Figure 14: Cost to produce and quantity produced ; Source: Aurora annual report; Note: Cash cost to produce per gram sold consist of Total Cost of Sales adjusted for depreciation, cost of accessories, packaging costs and other costs divided by Kilograms sold

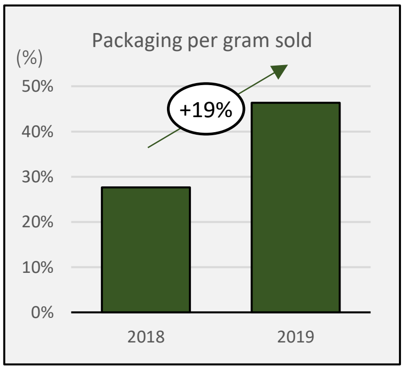

Figure 15: Packaging Cost per gram; Source: Aurora annual report; Note: Packaging per gram sold consists of Total packaging costs divided by Kilograms sold

Moreover, other yet important expenses of the cost structure such as packaging saw an increase in the last year (*Figure 15*). Most of this cost increase was due to the regulatory purpose mandated under *the Cannabis Act*[47] which obliges cannabis companies adopting new packaging, excise tax stamping among other requirements and likewise, is not expected to graduate increase the packaging per gram sold[48].

When compared to the most of his competitors, Aurora presents one of the lowest costs per gram among its largest competitors such as Canopy and Tilray[49]. The rest of the competitors presents a lower cost however they sell nearly half kilograms quantity as Aurora.

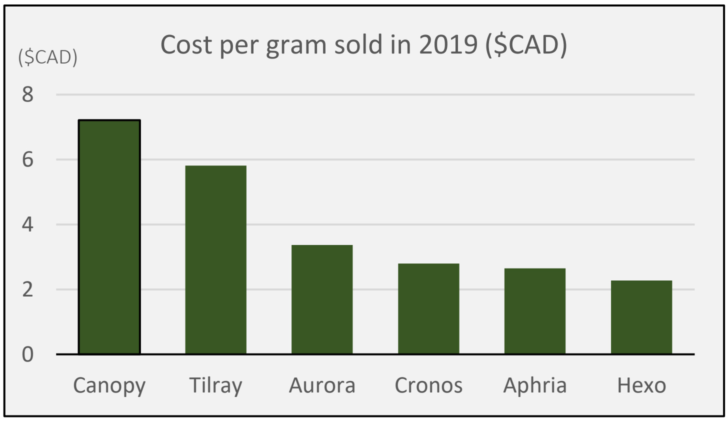

Figure 16: Cost of sale per gram sold; Source: Company respective annual report

[47] Law which legalized the recreational cannabis in Canada
[48] According to Aurora annual report, sale cost per gram sold = cost per gram to produce + packaging cost per gram
[49] Cost per gram sold was calculated by dividing Total Sales by Kilograms sold in order to compare with peers since not all companies reported under "cash cost to produce per gram sold"; Source: Competitors and Aurora respective annual report

Key Financial Performance

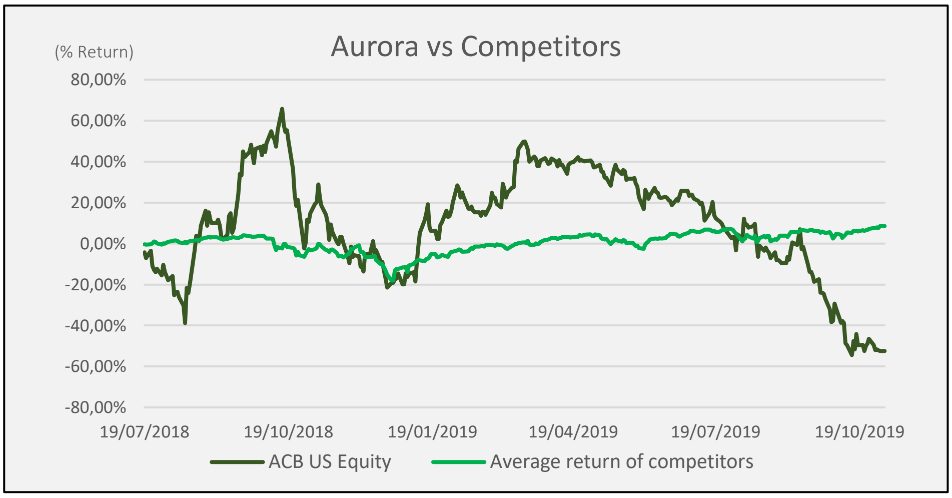

Figure 17: Aurora vs cannabis market; Note: Cannabis market was computed by averaging the daily returns of Aurora and Competitors; the graph represents the total return since 19/07/2018

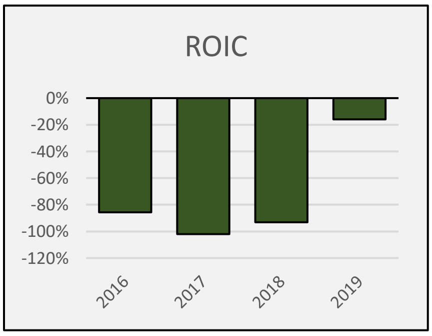

Figure 18: "Return on Invested Capital", Source: Company Data

Until the last quarter of 2019, Aurora was overall outperforming the cannabis sector. However, for the last 5 months, the stock has been underperforming the industry by a significant percentage (*Figure 16*) and there are three reasons suspected of having caused such selling:

1. Continue stake dilution through heavy equity financing to fund M&A activity: although not having a direct impact in stock price, it has a bad signaling effect for investor, because it exposes the lack of access to debt capital markets that affects the industry.
2. Continue negative EBITDA reported despite increase in revenues: although normal in an early stage company, it still means that the company is not being efficient at an operational level, pushing investors away.
3. Legalizations happened as expected, but bureaucracies associated were not agile enough: this created several problems in the free trade of the product and sometimes leaving space for the black market (e.g. in Canada, the lengthy process to get a selling license, delayed several store openings that were expected, contributing for inventory accumulation)

Moreover, in November 2019, Aurora announced that 94% of the holders of unsecured convertible debt worth $CAD 230M[50] converted their debt into stock at a 6% discount[51]. The stock dropped a total of nearly 30% the following 3 days as the transaction implied an issuance of more 69.1M shares, a move implied wariness for equity investors.

[50] Represented a total of the 54% of Total debt (the rest is mainly Accounts payable and accrued liabilities -
[51] Sources: Newswire - "Aurora Cannabis Announces Pricing of Early Amended Conversion Privilege for Convertible Debentures", November 2019

Valuation

Overview

The recreational legalization at a Federal level is expected in the USA

In line with the industry, Aurora Cannabis's stock price has been dropping throughout the year, mostly due to the mismatch between the expectations that were created for the legalizations, which ended up taking longer than expected. Also, the slow regulatory framework made licenses for distribution selling points to take longer than expected, contributing to inventory accumulation and a slower increase in sales than was expected.

Although this had a negative impact on the overall industry, the forecasts for the next five years show an optimistic view of the sector. The recreational legalization at a federal level is being discussed in the US, the surge of the European market, and the changing in opinions on cannabis by governments around the world, all contribute to the optimistic view on the sector.

Companies like Aurora will benefit a lot from this, especially because a strict regulatory framework is expected, where products will be subject to constant tests and quality proofs. Due to high barriers to enter such as intensive capital expenditures to face this regulation, the market will probably tend to consolidate into the already-established firms, which have the strongest distribution networks and the largest production facilities.

Aurora is expected to start having positive EBITDA within the next 4 years and to be cash flow positive until 2026

Therefore, Aurora is expected to start having positive EBITDA within the next four years and to be cash flow positive until 2026 when the markets start to consolidate, and no major Capex investments will be required.

Main Forecasts Reasoning

- Sales and Margins Margin

Key Financials (000´s $CAD)	2017	2018	2019	2020E	2021E	2022E	2023E	2024E	2025E
Revenues	18.067	55.196	281.097	626.929	1.066.058	1.671.970	2.140.978	2.740.795	3.323.011
% Δ YoY	*n/a*	*206%*	*409%*	*123%*	*70%*	*57%*	*28%*	*28%*	*21%*
Gross profit	10.120	37.907	161.354	419.571	696.524	1.067.630	1.383.884	1.768.464	2.154.082
Gross Margin	*56%*	*69%*	*57%*	*67%*	*65%*	*64%*	*65%*	*65%*	*65%*
EBITDA	(16.626)	(90.333)	(253.147)	(274.009)	(182.977)	(71.956)	227.300	474.418	893.172
EBITDA Margin	*-92%*	*-164%*	*-90%*	*-44%*	*-17%*	*-4%*	*11%*	*17%*	*27%*

Figure 19: Sales, Margins & EBITDA evolution; Data provided in the report is in current prices, already considering inflation

Overall, the sales of Aurora Cannabis are expected to continue with a strong increase in the next years, in particular the next three years, which will be important for the future of the industry[52]. The gross margin is expected to be higher than in 2019[53], once operations get stable.

In terms of distribution by segment (figure 20), the surge of the recreational segment in 2019 is expected to continue over the next years and solidify with the expected emergence of the European market, in particular after 2023, for the legal reasons mentioned above and further explored in a deeper analysis later on.

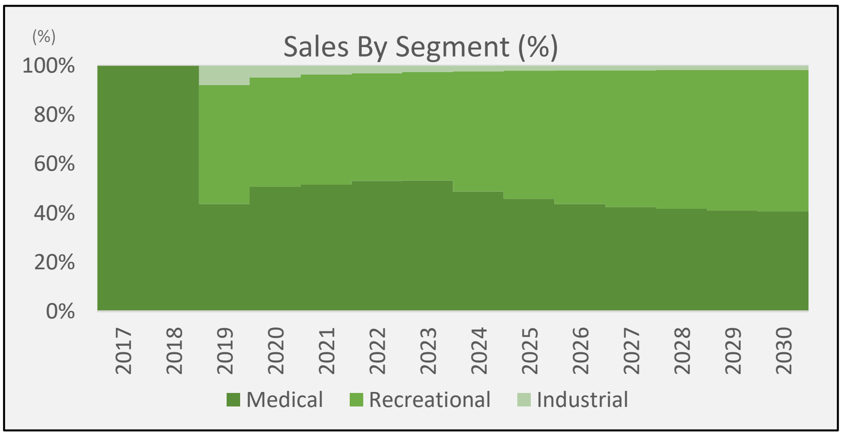

Figure 20: Sales Distribution by Segment

"The accumulation of stock over the last year is expected to be fully solved by next year, and inventory is not expected to have a rotation over one year when operations are mature"

Regarding sales distribution by region (figure 21) the concentration in North America is expected to decrease over the years, due to the rise of the legalization in the European market (and where Aurora is focusing its investment), as well as other markets in South America or Oceania.

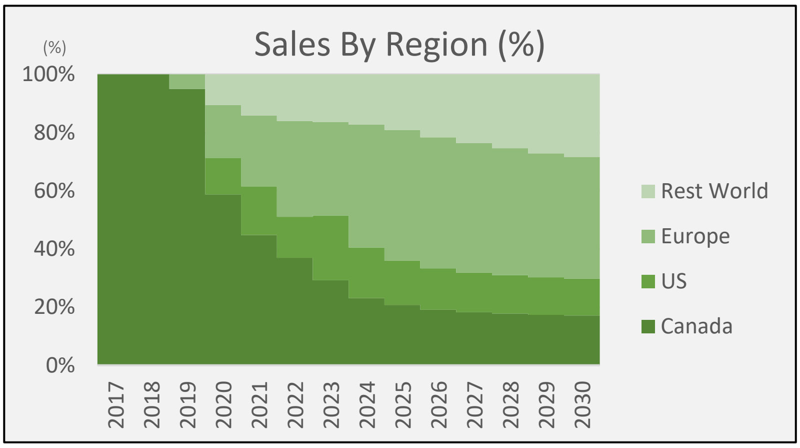

Figure 21: Sales Distribution by Geography

[52] The next three years are expected to see the consolidation of the industry in the US with the discussion at federal level to take place, and the beginning of the recreational liberalization in Europe

[53] The accumulation of inventory forced the company to decrease its margins in 2019 to be able to decrease inventories

- Net Working Capital

Although the company still has a typical early-stage structure[54] of cash conversion cycles, it is expected to mature in line with the industry[55] within the following years.

For example, the average metric of days payable is currently close to two years, which can be seen as unrealistic in the future, and therefore were projected to decrease in line with the industry.

Key Financials	2017	2018	2019	2020	2021	2022	2023	2024	2025
Days Receiva.	46	97	131	131	120	120	120	100	100
Days Inventory	354	625	472	400	350	350	300	300	300
Days Payable	392	642	620	500	400	350	300	250	200

Figure 22: Average Days of Net Working Capital

"Although the company still has a typical early-stage structure of cash conversion cycles, it is expected to mature in line with the industry within the following years"

Regarding the average days receivable, they are not expected to suffer major changes, and were forecasted to be in line with research data, in between three to four months until the collection of payments.

Lastly, the accumulation of stock over the last year is expected to be fully solved by next year, and inventory is not expected to have a rotation over one year when operations are mature.

- Capex

"Aurora is expected to continue financing its future acquisitions and operations next year mainly through equity issuances"

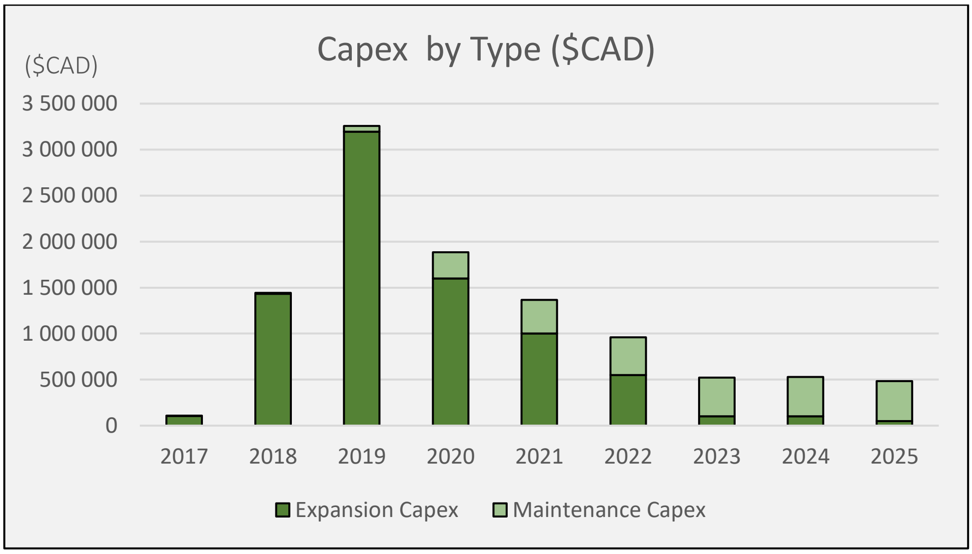

Figure 23: Capex forecast

[54] Start-ups usually have a shortage of cash flow and tend to extend payment days and force to decrease the days receivable.
[55] An analysis of the tobacco industry was performed and, in addition to a comparison with the main competitors, used as a proxy for forecasting Aurora's net working capital structure.

The Capex is expected to be one of the largest costs of the company due to the strategy of expanding and penetrating new markets. The firm has yet to find a strategy to enter the US market and that could potentially be in the form of an acquisition. Moreover, the company will most probably continue with the investments in Europe since only two of its facilities are already operating under the EU-GMP[56] practices.

Therefore, the expansion capex was forecasted to continue strong over the next three years, and then decrease in the following years, where a maintenance capex will be necessary to maintain the assets.

- Debt and Equity

"The expansion capex was forecasted to continue strong over the next three years, and then decrease in the following years, where a maintenance capex will be necessary to maintain the assets"

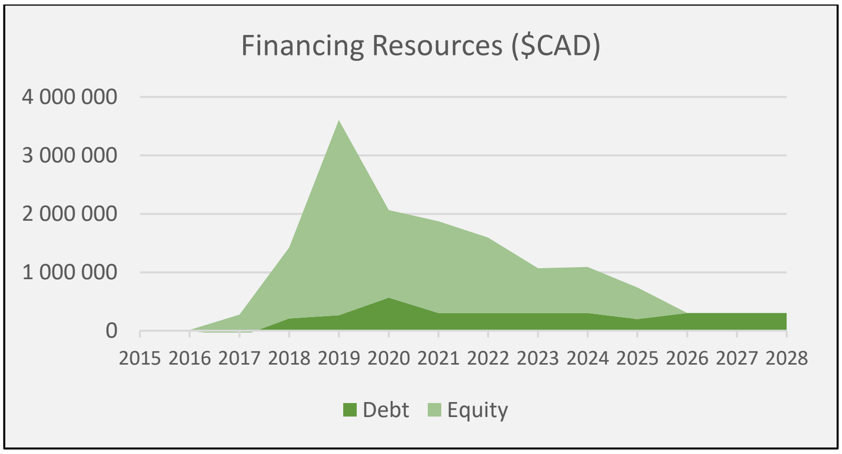

Figure 24: Aurora Financing Resources

The difficult access to debt markets makes it expectable for Aurora to continue financing its future acquisitions and growth through equity issuances in the medium term.

Later, as the firm turns operating cash flow positive, it is expected to restructure its capital structure and leverage itself in a sustainable way[57].

Valuation Methods

Different valuation methods[58] were performed in order to eliminate inconsistencies and have a robust valuation. Methods that will be given more relevance are the valuation by multiples and the valuation by discounted cash flows. Nevertheless, for high-growth companies with negative cash flows such as this one it is not

56 Good Manufacturing Practice: European Union production standards requirements.
57 The Forecast was performed with a long-term Net Debt/EBITDA target slightly above 2x, in line with similar industries.
58 For FTE, APV and WACC to be exactly the same, the capital structure used for the calculations should be adjusted each year, but it was considered not extremely relevant for the analysis needed.

uncommon to apply types of valuations usually seen in venture capital fields (e.g. 3-stage model[59]), but it was decided to not consider these valuations due to the lack of detail they present.

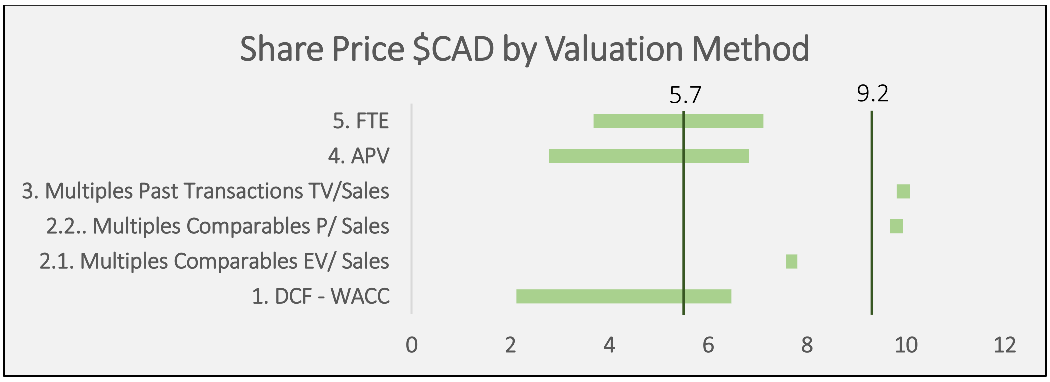

Figure 25: Share prices by valuation method

"Is possible to verify a gap between the average valuation derived from intrinsic valuation methods and the valuation derived from multiples, leaving a range between $CAD 6 – 9 for the share price projection for March 2021, higher than the current stock price (around $CAD 3)"

It is possible to verify a gap between the average valuation derived from intrinsic valuation methods and the valuation derived from multiples, leaving a range between $CAD 6 – 9 for the share price projection for March 2021, higher than the current stock price (around $CAD 3).

- Valuation by multiples

Although it is more common to use multiples such as EV/EBITDA, the fact that Aurora is a high-growth company with negative results leads to the choice of other kinds of multiples when performing the valuations.

Multiples[60]	EV/Sales	P/Sales
Aurora	8.51x	7.37x
Tilray	14.30x	12.10x
Canopy	19.40x	20.20x
Aphria	5.10x	10.60x
Hexo	7.01x	4.24x
Cronos	11.83x	22.19x
Curaleaf	14.80x	15.40x
Industry Average	11.56x	13.16x

Figure 26: Multiples by Company; Source Company´s Financial Statements

Industry averages were computed for both multiples of comparable firms and multiples of past transactions and used for valuation.

EV/Sales of 11.56x and Price/Sales of 13.16x were used to forecast the share price for FY2020 ($CAD 7.7 and $CAD 9.9, respectively).

[59] A derivation of the Gordon Growth Model allows for different growth rates throughout the years (i.e. the stages), which fits an early-stage company of this kind.
[60] Firms chosen where the most comparable with Aurora in terms of company organization, product lines and geographies covered

In what relates to past transactions, the transactions which occurred within the industry were analyzed to understand the most representative ones[61]. A multiple EV/Sales of the acquired company of 13.3x was computed and used for valuation purposes (share price of $CAD 10). Nevertheless, the use of the multiple for valuation purposes should be cautious because usually it might be inflated due to common premiums paid on transactions (e.g. control, majority, among others).

Rf	1.51%
Market risk Premium	5.50%
Be (Beta Re-levered)	1.08
Re (Lev. Cost of equ.)	7.43%

Interest Cov. Ratio	4.32x
Synthethic Rating	A-
Typical Default	3.00%
Risk Free	1.51%
RD (Cost of debt)	4.51%

Re (Lev. Cost of eq.)	7.43%
Target D/E	20.00%
Rd (Cost of debt)	4.51%
Tax Rate	27.00%
WACC	6.74%

Figure 27: Inputs for Valuation

- Valuation by discounted cash flows

The levered betas of all companies within the sector (mentioned above) were calculated by plotting the regressions of their weekly returns against those of the S&P500.

An industry median was considered and after adjustments for capital structure, a beta of 1.12 was computed for Aurora.

The market risk premium of 5.5% was considered[62] to get into a cost of equity of 7.43%. The cost of debt was computed by calculating the company interest coverage ratio and subsequently attributing a synthetic rating accordingly which would then correspond to a default spread[63]. Lastly, the Rd was computed by summing the risk free, which used the Canada 10-year rate, and the default spread. A target Debt to Equity ratio was based on the median of the tobacco industry, considered a solid example of what the cannabis industry will turn into (in terms of distribution channels, players, or even strategies).

Cash flows were forecasted until 2035 and a growth rate of 3.5%[64] was used to calculate the terminal value. Finally, a WACC of 6.76% was computed and used for valuation purposes (for a share price of $CAD 5.7).

"The growth rate of the legalizations around the world, the entrance into the US market, the M&A strategy, among others, are all important factors associated with risks for the company, if they do not materialize as planned"

Main Risks & Scenario Analysis

Finally, a scenario analysis was performed on what are considered to be the major risks for the company over the next years. The growth rate of the legalizations around the world, the entrance into the US market, the M&A strategy, among

[61] Most relevant transactions within the sector were filtered, and only largest deals related with main companies were considered for the multiple calculation, and then outliers were excluded in order to give a more robust number. The full list can be seen in the attached excel file
[62] "Forecasting Stock Market Returns", 2010, Miguel Ferreira and Pedro Santa Clara
[63] Given Aurora interest coverage ratio around 4.3x, synthetic rating attributed was A- and the corresponding default spread is 3% ("Ratings, Interest Coverage Ratios and Default Spread", New York University, 2019)
[64] Average of RR*RONIC (T. Koller, M. Goedhart, and D. Wessels, Valuation: Measuring and Managing the Value of Companies, McKinsey & Company, John Wiley & Sons, 5th ed.) for the last two years was equal to 4.1%, and then an average was made between that number and the nominal growth considered based on historical data (Canada 1958-2019 Nominal Growth of 3.1% and inflation of 1.7%) and economic official growth forecasts by Canada Government Official Website

others, are all important factors associated with risks for the company, if they do not materialize as planned.

The first analysis was performed on the strategy to enter the US market. Aurora is still not selling in the US, which is a competitive market with several small American players. However, with the consolidation of the market, it is expected that major firms will manage to capture some market share.

A base scenario where Aurora captures around 2%[65] of the market was the one used for main valuations. Then, a scenario where Aurora keeps outside the US market and a scenario where Aurora will gain a stronger share of the market were calculated.

Valuation Method	Keep Outside US Market	Base Scenario	Gain Stronger Position In US
1. DCF - WACC	4.2	6.5	9.9
2.1. Multiples EV/ Sales	6.7	7.8	8.9
2.2. Multiples P/ Sales	8.7	9.9	11.2
3. Multip. Transact. TV/Sales	8.8	10.1	11.3
4. APV	4.7	6.8	10.0
5. FTE	5.3	7.1	9.8

Figure 28: Scenario Analysis on the Entrance in US Market and its impact on Stock price ($CAD)

Based on what was described throughout the report, the base scenario seems to be the most reasonable and was attributed a 75% probability for valuation purposes. The US is a market in consolidation, which is starting to open to large international companies, and Aurora needs to be taken into consideration. Nevertheless, this is a competitive market and therefore a lower share (when compared to its share in Canada) was used.

The other two scenarios were not considered to have a high probability (10% for keeping outside the US, and 15% for gaining a stronger position), but it is relevant to analyze the impact that they would have on the share price (e.g. DCF valuation for the scenario outside the US gives a $CAD 4.2 share price which is close to what current markets are pricing) in order to understand which implications they might have in Aurora's valuation.

"Another important issue for the firm as well as for the entire industry, is the pace of the legalization processes in the recreational segment, both in Europe and the rest of the world (excluding the US and Canada, where no major risks are expected)"

Another important issue for the firm as well as for the entire industry, is the pace of the legalization processes in the recreational segment, both in Europe and the rest of the world (excluding the US and Canada, where no major risks are expected). Although a positive trend on the sector seems to be expectable, there are still several steps and barriers that need to be overcome.

[65] Market share was calculated as a proxy based on other markets. It is known that Aurora has around 13% share in Canada, and its main investments have been realized in Europe, where it is expected to capture a lower share (later assumed to be around 5%). Therefore, in the US, it was considered a share lower than the ones mentioned before, and similar for both medical and recreational segments.

A base scenario was calculated, where legalizations follow the trends mentioned throughout the report. This scenario was attributed a probability of 65% because despite being the most probable, it is still unclear how the sector will overcome some problems being raised by opposite lobby groups (e.g. moderate international institutions like the church, conservative political parties, beverages sector, among others). Therefore, a scenario where the growth of the market is not as fast as initially planned[66] was calculated, giving a share price by DCF of $CAD 2.1 compared with the $CAD 6.5. of base scenario.

Valuation Method	Legalization Takes Longer	Base Scenario	Faster Legalization Process
1. DCF - WACC	2.1	6.5	8.3
2.1. Multiples EV/ Sales	7.6	7.8	7.9
2.2. Multiples P/ Sales	9.7	9.9	10.0
3. Mlt. Past Transact. TV/Sales	9.8	10.1	10.2
4. APV	2.8	6.8	8.5
5. FTE	3.7	7.1	8.6

Figure 29: Scenario analysis on pace of legalizations in Europe and Rest of the World for Recreational Cannabis and its impact on Stock price ($CAD)

A faster legalization process is not likely to happen, and therefore a 5% probability was attributed to this scenario, used in order to understand what the implications for Aurora would be in case it does happen.

[66] In this case, the overall size of the recreational market in those geographies in 2025 was assumed to be around 1/3 of the base scenario

Appendix

Financial Statements[67]

Income Statement (000´s $CAD)

Income Statement	2017	2018	2019	2020E	2021E	2022E	2023E	2024E	2025E
Total Revenue	18.067	55.196	281.097	767.576	1.353.185	1.918.639	2.737.451	3.754.000	4.486.030
Cost of Sales	(7.947)	(17.289)	(119.743)	(266.878)	(488.202)	(707.385)	(1.003.440)	(1.385.595)	(1.641.881)
Gross margin	10.120	37.907	161.354	500.698	864.983	1.211.254	1.734.011	2.368.406	2.844.150
R & D Expenditures	(314)	(1.679)	(14.778)	(21.767)	(27.767)	(31.767)	(33.767)	(35.767)	(36.767)
Sales/Marketing	(10.270)	(29.445)	(99.289)	(230.273)	(338.296)	(479.660)	(547.490)	(750.800)	(672.905)
Depreciation & Amortization	(716)	(12.088)	(63.371)	(285.393)	(365.393)	(410.393)	(420.393)	(430.393)	(435.393)
Professional Fees	(1.551)	-	-	-	-	-	-	-	-
Office, Rent and Administration	(6.813)	(42.965)	(172.365)	(272.365)	(322.365)	(372.365)	(377.365)	(382.365)	(387.365)
Stock Based Compensation	(7.584)	(37.450)	(107.039)	(230.273)	(405.955)	(575.592)	(821.235)	(1.126.200)	(1.121.508)
Acquisition costs	-	(15.664)	(17.217)	(5.811)	(2.906)	(1.453)	-	-	-
Operating Margin	(17.128)	(101.384)	(312.705)	(545.185)	(597.700)	(659.976)	(466.240)	(357.120)	190.212
Interest income	861	2.514	3.679	7.950	-	-	-	-	-
Other income	-	-	109.464	-	-	-	-	-	-
Finance and other costs	(6.582)	(13.155)	-	15.000	15.000	15.000	15.000	15.000	15.000
Interest Paid	(471)	(7.066)	(41.025)	(96.724)	(141.724)	(186.724)	(231.724)	(276.724)	(214.483)
Foreign exchange	(215)	(1.038)	(3.814)	(7.676)	(13.532)	(19.186)	(27.375)	(37.540)	(44.860)
Recovery of receivables	-	1.400	-	-	-	-	-	-	-
Income (loss) before income taxes	(23.535)	(118.729)	(244.401)	(626.634)	(737.956)	(850.886)	(710.338)	(656.384)	(54.131)
Current tax recovery (expense)	4.296	(8.099)	30.307	97.319	119.788	141.448	127.621	125.918	24.790
Net income (loss)	(19.239)	(126.828)	(214.094)	(529.315)	(618.168)	(709.438)	(582.717)	(530.466)	(29.341)

Cash Flow Statement (000´s $CAD)

Cash Flow Reconciliation	2017	2018	2019	2020E	2021E	2022E	2023E	2024E	2025E
Net Income	(8.344)	57.896	(337.062)	(529.315)	(618.168)	(709.438)	(582.716)	(530.466)	(29.341)
Non-Cash Adjustments	716	12.088	63.371	285.393	365.393	410.393	420.393	430.393	435.393
Δ Net Working Capital	(4.122)	(24.501)	(70.357)	(208.853)	(256.531)	(333.558)	(384.025)	(462.342)	(562.392)
Capex Expansion	(106.335)	(1.432.076)	(3.195.546)	(1.600.000)	(1.000.000)	(550.000)	(100.000)	(100.000)	(50.000)
Maintenance Capex	(716)	(12.088)	(63.371)	(285.393)	(365.393)	(410.393)	(420.393)	(430.393)	(435.393)
Δ Other Balance Sheet Items	(9.112)	(103.591)	152.822	25.767	12.884	6.442	3.221	1.610	805
Δ Non-core items	10.620	6.291	20.479	(18.695)	(9.348)	(4.674)	(2.337)	(1.168)	(584)
Total Unlevered Cash Flow	(117.293)	(1.495.982)	(3.429.664)	(2.331.096)	(1.871.163)	(1.591.228)	(1.065.857)	(1.092.366)	(641.511)
Δ Net Debt	(104.022)	209.680	265.686	565.007	300.000	300.000	300.000	300.000	200.000
Cash Flow to Equity	(221.315)	(1.286.302)	(3.163.978)	(1.766.089)	(1.571.163)	(1.291.228)	(765.857)	(792.366)	(441.511)
Δ Transactions w/ Shareholders	380.519	1.215.947	3.339.906	1.501.082	1.571.163	1.291.228	765.857	792.366	541.511
Dividends	-	-	-	-	-	-	-	-	-
Free Cash Flow	159.204	(70.356)	175.928	(265.007)	()	()	()	()	100.000
Cash BOP	230	159.435	89.079	265.007	()	()	()	()	()
Δ Cash	159.204	(70.356)	175.928	(265.007)	-	-	-	-	100.000
Cash EOP	159.435	89.079	265.007	()	()	()	()	()	100.000

[67] For more detail and years after 2025 please look into the excel file attached

Balance Sheet (000´s $CAD)

Balance sheet	2017	2018	2019	2020E	2021E	2022E	2023E	2024E	2025E
Assets									
Current									
Cash	159.715	89.193	172.727	15.352	27.064	38.373	54.749	75.080	189.721
Restricted Cash	-	-	-	n/a	n/a	n/a	n/a	n/a	n/a
Short term investments	81	990	97.902	n/a	n/a	n/a	n/a	n/a	n/a
Accounts receivable	2.312	15.096	103.493	275.634	444.883	630.785	899.984	1.028.493	1.229.049
Marketable securities	14.845	59.188	143.248	71.624	35.812	17.906	8.953	4.477	2.238
Biological assets	4.088	13.620	8.833	26.846	49.110	71.158	100.939	139.381	165.162
Inventory	7.703	29.595	113.641	292.470	468.139	678.314	824.745	1.138.845	1.349.491
Prepaids	3.126	7.594	24.323	66.417	117.090	166.018	236.868	324.829	388.171
Total current assets	**191.870**	**215.276**	**664.167**	**748.343**	**1.142.097**	**1.602.554**	**2.126.238**	**2.711.105**	**3.323.833**
Non-current									
Other Assets	1.736	4.422	6.926	3.463	1.732	866	433	216	108
PP&E	45.523	246.352	765.567	1.765.567	2.265.567	2.515.567	2.515.567	2.515.567	2.515.567
Convertible debenture	11.071	-	-	-	-	-	-	-	-
Loans Recceivable	-	-	-	-	-	-	-	-	-
Derivatives	292	124.942	86.409	43.205	21.602	10.801	5.401	2.700	1.350
Investment Associat.	-	334.442	118.845	318.845	518.845	618.845	618.845	618.845	618.845
Intangible assets	31.087	256.232	688.366	1.088.366	1.388.366	1.588.366	1.688.366	1.788.366	1.838.366
Goodwill	41.100	729.050	3.172.550	3.172.550	3.172.550	3.172.550	3.172.550	3.172.550	3.172.550
Total non-current assets	**130.809**	**1.695.440**	**4.838.663**	**6.391.996**	**7.368.662**	**7.906.995**	**8.001.161**	**8.098.245**	**8.146.786**
Total assets	**322.679**	**1.910.716**	**5.502.830**	**7.140.339**	**8.510.759**	**9.509.549**	**10.127.400**	**10.809.350**	**11.470.619**
Liabilities									
Current									
Accounts payable	8.749	31.162	152.884	365.587	535.016	678.314	824.745	949.037	899.661
Income taxes payable	-	1.659	-	-	-	-	-	-	-
Deferred revenue	1.421	2.266	749	2.045	3.606	5.112	7.294	10.003	11.953
Loans and borrowings	69	2.451	13.758	13.758	13.758	13.758	13.758	13.758	13.758
Derivatives liabilities	-	-	728	364	182	91	46	23	11
Accounts Payable PPE	4	16.294	-	-	-	-	-	-	-
Convertible Debt	-	-	235.909	235.909	235.909	235.909	235.909	235.909	235.909
Contingent Considera.	13.221	21.333	32.337	16.169	8.084	4.042	2.021	1.011	505
Total current liabilitites	**23.464**	**75.165**	**436.365**	**633.832**	**796.555**	**937.227**	**1.083.773**	**1.209.741**	**1.161.798**
Non-Current									
Convertible Notes	63.536	191.528	267.672	567.672	867.672	1.167.672	1.467.672	1.767.672	2.067.672
Loans and borrowings	282	9.232	127.486	127.486	127.486	127.486	127.486	127.486	127.486
Deferred gain	10.206	-	11.979	5.990	2.995	1.497	749	374	187
Deferred gain deriv.	321	2.254	177.395	88.698	44.349	22.174	11.087	5.544	2.772
Deferred tax liability	5.937	69.406	91.886	91.886	91.886	91.886	91.886	91.886	91.886
Total non-current lia.	**80.282**	**272.420**	**676.418**	**881.731**	**1.134.388**	**1.410.716**	**1.698.880**	**1.992.962**	**2.290.003**
Total liabilities	**103.746**	**347.585**	**1.112.783**	**1.515.563**	**1.930.943**	**2.347.943**	**2.782.652**	**3.202.702**	**3.451.801**
Shareholders' equity									
Share capital	221.447	1.466.433	4.673.118	6.153.524	7.726.732	9.017.960	9.783.817	10.576.183	11.017.695
Reserves	20.745	4.920	139.327	139.327	139.327	139.327	139.327	139.327	139.327
Accumulated C. Inc.	5.167	(533)	(143.170)	(672.485)	(1.290.653)	(2.000.091)	(2.582.807)	(3.113.273)	(3.142.613)
Retained earnings	(28.426)	87.749	(283.638)	n/a	n/a	n/a	n/a	n/a	n/a
Non-controlling int.	-	4.562	4.410	4.410	4.410	4.410	4.410	4.410	4.410
Total equity	**218.933**	**1.563.131**	**4.390.047**	**5.624.776**	**6.579.816**	**7.161.606**	**7.344.747**	**7.606.648**	**8.018.818**
Total liabilities and equity	**322.679**	**1.910.716**	**5.502.830**	**7.140.339**	**8.510.759**	**9.509.549**	**10.127.400**	**10.809.350**	**11.470.619**

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Buy	Expected total return (including expected capital gains and expected dividend yield) of more than 10% over a 12-month period.
Hold	Expected total return (including expected capital gains and expected dividend yield) between 0% and 10% over a 12-month period.
Sell	Expected negative total return (including expected capital gains and expected dividend yield) over a 12-month period.

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A Work Project, presented as part of the requirements for the Award of a Master Degree in Finance from the NOVA – School of Business and Economics.

“Competition gets real”: A deep dive into the strategies of main players within the sector

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A Project carried out on the Master´s in Finance Program, under the supervision of:

Professor Rosário André

03/01/2020

Abstract:

Starting in Canada, the wave of legalizations in Cannabis industry originated several companies. As the years passed, more firms started to appear in other geographies with different strategies to face the different markets.
In Europe, Aurora Cannabis, Canopy Growth and Aphria seem to have advantage. In the US, Curaleaf, Cronos and Canopy appear in the frontline. And in Canada, Aurora, Canopy, Tilray and Aphria seem to be the ones better positioned for the near future.
Overall, Aurora Cannabis seems to have an advantage in geographical presence but lacks a stronger network in the US where competitors have a competitive advantage.

Keywords: Cannabis Industry, Main Players, Geographical Presence, European Cannabis

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Introduction

During the first wave of the cannabis legalization in countries such as Canada, the US, Germany among others, major cannabis companies became a *hot topic*. Likewise, Aurora and its competitors, who rapidly set footprint in these markets, saw large increases in revenues. Although "regulation" keeps being the keyword affecting the cannabis market and is among one of the major concerns for investors, cannabis players have played different strategies in what regards market positioning, channels distributions and productions sites. Therefore, understanding the strategies of Aurora's competitors and businesses can prove to be important to assess the firm market share in the foreseeable future, and therefore it was decided to analyze several case studies, in the most relevant geographies.

European Market

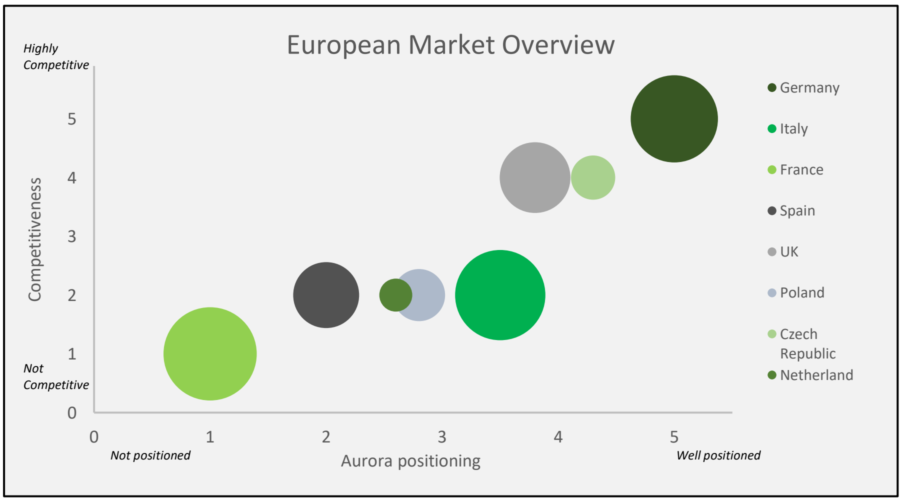

Figure 1: European cannabis market and Aurora positioning; Source: Prohibition partners; Companies respective annual report

Estimated to be worth around $USD 50Bn in 2028[1], Europe has become an attractive market for major Canadian companies. Although only medical cannabis is currently legalized[2] in a few countries such as Germany, Portugal, Italy among others, most of the strategies deployed by the Canadian companies in this market have a long-term view on capturing future market share once further developments are made regarding cannabis regulations.

Starting with Canopy Growth (one of the largest players) which currently has a footprint in seven countries in Europe. In Germany, it uses one of the portfolios' brand called Spectrum Therapeutics, which operates as a

[1] Source: Prohibition Partners; Global Cannabis Report; New Frontier Data; Euromonitor; UN ODC
[2] European market is divided in retail and medical. Retail market is consisted of mainly CBD products where THC levels are low, whereas medical market consists of cannabis flowers and extracts which are subject to a high scrutiny process before distributed to pharmacies (need to comply with EU-GMP – European union good manufacturing process)

pharmaceutical distributor, to legally import from Canada and sell in Europe. More recently, they have acquired C3, which is a European cannabinoid-based pharmaceutical company manufacturer and distributor of dronabinol[3]. In Denmark, the same brand, Spectrum Therapeutics, received the necessary licensing to cultivate, harvest, export and sell medical cannabis in dried flower form[4]. In Poland, the company completed its first import of medical cannabis into Poland. Even though is not yet legal to sell medical cannabis in Poland, it is estimated that up to 300K patients could qualify for medical cannabis[5]. Likewise, Canopy presents a fair competitive advantage in the future medical market in Poland. In Spain, Canopy acquired Cafina, which is one of the three companies in Spain legalized to cultivate, distribute and export cannabis containing more than 0.2% THC for medical and research purposes. In addition, the company entered into a license agreement with Alcaliber S.A in FY 2018 whereby Canopy can use certain strains and seeds to be grown and cultivated in Alcaliber facilities for sale worldwide. In the United Kingdom in 2019, Spectrum Therapeutics received government licenses to store and distribute medical cannabis products from European facilities. Finally, in the Czech Republic, Canopy acquired Annabis Medical and they currently import and distribute products through pharmacy channels.

Regarding Tilray, the company is also present in seven countries in the European Union. The international hub of the Canadian company is situated in Portugal. In 2017, Tilray was authorized to cultivate, import and export bulk medical cannabis form Portugal to the EU and this year was awarded the GMP certification in accordance with EMEA standards[6]. In Germany, the company distributes its products through pharmaceutical wholesalers such as Noweda medical cannabis. Lastly, the Canadian company formed partnerships with distributors in multiple countries and currently sells its products to the Czech Republic, Croatia, Ireland, United Kingdom, and Cyprus through pharmacies distributers.

Set up in fewer countries in the EU compared to the previously mentioned companies, Aphria has a footprint in four countries in Europe. In Germany, the company has a subsidiary called Aphria Deutschland which was recently authorized for the cultivation of medical cannabis and could produce around 1,000 kg a year[7]. Aphria, through a partnership with European Flower, is expected to have access to the EU GMP-certified organic medical cannabis and have further access to cannabis to sell throughout Europe. In addition, the company acquired CC Pharma which is an importer and pharmaceutical distributor for the German market and could prove to be helpful to expand the medical cannabis distribution in the German market. In Malta Apria can import cannabis for processing, packaging and distribution of EU-GMP certified cannabis products across Europe through the subsidiary ASG Pharma[8]. In Italy, through the subsidiary FL-Group, the firm is authorized to

[3] Registered active pharmaceutical ingredient in Germany, Austria, Switzerland and Denmark
[4] Facility which included approximately 300,000 squares feet of licensed greenhouse cultivation.
[5] Source: Canopy Q2 FY2020 report
[6] EU-GMP standards stands for European Union's Good Manufacturing Practices and is a requirement to sell cannabis products in the European market.
[7] After the German government completed a tender process to award licenses for in-country cultivation, the company was granted most available lots (5 lots, where 1 lot = 200kg production)
[8] According to the company's' quarterly report Q1 2020, the ASG's EU-GMP certified lab is fully operational since August 2019.

distribute its cannabis-based products through pharmacies. Finally, the company also has supply agreements for the sale of medical cannabis in the United Kingdom.

Cronos is a smaller player in the European market with a presence in only two countries. In Germany, the company sells medical cannabis products through pharmacies after announcing a five-year exclusive distribution agreement with G.Pohl-Boskamp which is an international pharmaceutical manufacturer. Also in Poland, the company will distribute within the Polish medical market through a partnership with Delfarma, a pharmaceutical wholesaler.

Aurora Cannabis, with over $CAD 5M in revenue from Europe, has an extensive network distribution that can reach up to 15 countries. In Germany, the company acquired Pedanios in 2017, which provided the company with a first-mover advantage in the medical market. Aurora was among the first companies to have EU GMP[9] certified facilities which was key to be a pioneer in selling oils in the German market[10]. In Denmark, the company is building a 100-hectare facility in Odense. In Italy, the company signed an agreement whereby they will be supplying the Italian government through Aurora Europe for the next two years[11]. In the rest of the European countries, Aurora has either joint ventures or/and allowances to ship medical cannabis and sell exclusively through pharmaceutical wholesalers.

United States

The United States is currently the largest legal cannabis market, valued around $USD 15Bn despite not having federally legalized it for medical or recreational use[12]. Likewise, most cannabis companies have shown interest in the market by unfolding several partnerships and strategies but have also found setbacks given that the market is not yet legal at a federal level.

Curaleaf, an American cannabis producer, distributor, and retailer, which operates only in the US, is currently the largest US player after reporting revenues of $USD 176M Year to date. The firm has a presence in 19 states, particularly in the West Coast (in states such as Oregon, California, Arizona, among others). After production and transformation, the company makes their distribution either through their own retail or other distribution channels[13].

[9] Competitors such as Canopy, Cronos, Aphria and Tilray also have EU-GMP certification in some of their facilities nowadays.
[10] "Pedanios 5/1" drops were the first extract-derived oil product to be authorized to be sold.
[11] Among the products supplied is usually different types of cannabis strains and medical cannabis flowers (flower high in THC, flower with equally THC and CBD and higher CBD flower.
[12] Source: Prohibition Partners; Global Cannabis Report; New Frontier Data;
[13] Products distributed include vape, concentrates, flower, capsules, edibles among others.

Canopy formalized an agreement to acquire 100% of Acreage Holdings (the largest multi-state owner of cannabis licenses in the US), through a financial option dependent on cannabis legalization at a federal level[14]. A move that would secure market share in the US, since it will give Canopy access to their cultivation and retail infrastructure and hence allow the cannabis company to introduce their diverse portfolio of brands such as Tweed, Spectrum, Craftgrow among others in the North American country. Although not yet present in the US market, further developments in the passage of the Farm Bill[15], made the company express their interest to enter the US market regarding hemp, as of its last quarterly report.

Cronos, having Altria[16] as a main shareholder, has not yet reported any revenues from the US market. However, in September 2019 the company acquired the firm Redwood, which markets and distributes hemp-derived CBD infused skincare under the brand Lord Jones.

Canada

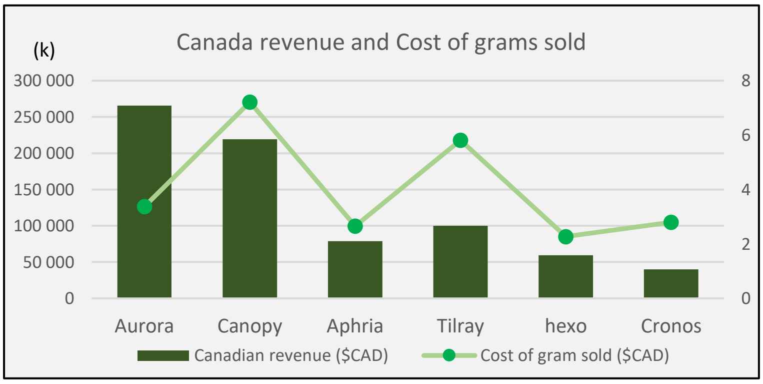

Figure 2: 2019 Canadian revenue breakdown by company - Source: Company respective annual report - Note: Cost of grams sold consists of Total sales divided by kilograms sold

Cannabis Product	Award Winner
Sativa flower	Aurora
Indica flower	Aurora
Hybrid flower	Canopy
Sativa Dominan preroll	Aphria
Indica Dominant preroll	Aphria
Hybrid preroll	Aphria
High CBD bottle oil	Aphria
Balanced bottled oil	Aurora
Cannabis spray	Aurora
Cannabis capsules	Canopy

Figure 3: Canadian cannabis awards; Source: Canadian cannabis awards; Lift & Co

In October 2018, Canada became the first country of the G7 to legalize medical cannabis for recreational use. Today, the market is worth around $USS 2.5Bn[17] and is projected to increase in the upcoming years. For the majority of players (including Aurora), Canada is where most of their production capacity is located and is their largest source of revenue, having likewise a more complete vertical integrated business than internationally. Aurora is currently among the top producers of cannabis with over 700,000kg produced[18], revenue leader in Canada and among the best cannabis products in 2019. Likewise, revenue leadership alongside low production cost is expected to maintain the company market share in the north American country.

[14] After paying a premium of nearly $USD 300M Canopy will acquired 100% of Acreage if cannabis turns legal at a federal level.
[15] “Agriculture Improvement Act of the United States”, with respect to agricultural and food policy. According to the Farm Bill 2018, industrial hemp became legal in the US, bringing the topic back to discussion.
[16] The tobacco company Altria holds a 45% stake in Cronos
[17] Sources: Prohibition Partners; Global Cannabis Report; New Frontier Data; Euromonitor; UN ODC
[18] Source: Aurora annual report; According to each company annual report Canopy capacity = over 500,000kg, Aphria capacity = over 255,00kg, Tilray capacity = over 200,000kg

Main Conclusions and Implications

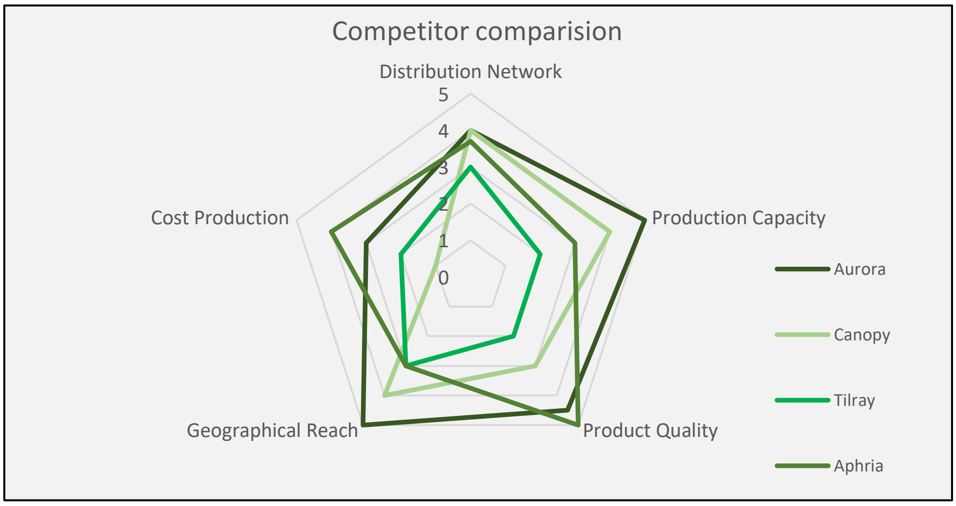

Figure 4: Aurora vs Competitors - Source: Companies respective annual reports - Cronos, Hexo and Curaleaf were not included due to lack of information

To conclude, overall Aurora has a fair competitive advantage in what regards production and geographical reach. Moreover, the new laws in countries in the EU, such as UK and Poland, allowing for the import of cannabis, will prove to be important to continue among the largest cannabis sellers in the EU. Also, by supplying the Italian market and producing in Germany[19],which are expected to be the largest cannabis markets in Europe, Aurora presents a critical first-move advantage compared to most of its peers. Nonetheless, one strong competitor Aurora might face for the next quarters regarding the EU market, is Aphria which is present in the largest markets in Europe alongside strong distributions channels.

On the other hand, the company has a disadvantage regarding the United States market which is forecasted to be one of the largest markets worldwide. The market share leader in the US is Curaleaf, however that does not mean they will not face competition over the next quarters. As soon as the United States legalizes cannabis, companies such as Cronos and Canopy can quickly leverage their production and distribution across the country[20]. Until the market in the US becomes legal, the probability of Aurora turning its investment to the US is low given the company is focusing on the European market where it holds competitive advantage against its peers. Therefore, there is a low probability of Aurora becoming market share leader in the US cannabis market in the next quarters.

[19] Source: Prohibition partners
[20] Given the strong shareholders reputation such as Constellation brands and Altria, the two Canadian companies have easier access to the distribution network across the US